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CA410

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : **214410**

Roll No.

M. C. A.

(SEM. IV) THEORY EXAMINATION, 2014-15

COMPILER DESIGN

Time : **3** Hours] [Total Marks : **100**

Note : (1) **All** questions are compulsory.
(2) **All** questions carry equal marks.

1 Attempt any four parts of the following : 5×4=20

(a) What is translator ? Classify the tranlators.

(b) Describe the synthesis – analysis model of compiler.

(c) Discuss the role of Macros in programming languages.

(d) Describe the basic structure of compiler.

(e) Explain the term token, lexeme and pattern.

(f) Discuss two compiler writing tools.

2 Attempt any two parts of the following : 10×2=20

(a) What do you understand by single pass and multi-pass compiler ? Discuss their merits and demerits also.

(b) Explain about basic parsing techniques. What is top down parsing ? Explain in detail.

(c) Define the following :

(i) Regular expression

(ii) Regular grammar

(iii) Context free grammar

(iv) Context sensitive grammar.

3 Attempt any two of the following : 10×2=20

(a) What do you mean by left factoring ? Explain with the help of example, how left factoring can be avoided.

(b) Consider the following :

$E \rightarrow T + E / T$

$T \rightarrow V * T / V$

$V \rightarrow id$

Write down the procedures for the non terminals of the grammar to make a recursive descent parser.

(c) Discuss the role of syntax directed translation scheme.

4 Attempt any two of the following : 10×2=20

(a) What is I.R. parser ? How it is different from SLR ? Construct LALR table for

$S \rightarrow S$

$S \rightarrow aAd / bBd / aBc / bAc$

(b) What do you mean by DAG ? Explain the algorithm for constructing a DAG with the help of example.

(c) Write short notes on the following : (any **two**)

(i) Problem in code generation

(ii) Local and loop optimization

(iii) Run time storage management

5 Attempt any two of the following : 10×2=20

(a) Describe the various code optimization techniques in detail.

(b) How registers are allocated in code generation ? Differentiate among source code intermediate code and object code.

(c) Explain any **two** of the following in detail :

(i) Lexical phase errors

(ii) Syntactic phase errors

(iii) Semantic phase errors.